DOCUMENT RESUME

ED 155 282 UD 018 319

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TITLE An Analysis of "Using Achievement Test Scores to Allocate Title I Funds."
INSTITUTION Library of Congress, Washington, D.C. Congressional Research Service.
PUB DATE 17 Feb 78
NOTE 37p.; For related documents, see UD 018 317-318

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Achievement Tests; *Change Strategies; *Compensatory Education Programs; Elementary Secondary Education; *Federal Programs; *Resource Allocations; *Scores
IDENTIFIERS *Elementary Secondary Education Act Title I

ABSTRACT

This paper is a review and analysis of a report on compensatory education which was prepared by the National Institute of Education (NIE). The report focused on the problem of the allocation of funds on the basis of achievement test scores rather than on the poverty criteria. It discussed issues regarding the allocation of Elementary Secondary Education Act Title I funds by test scores, the procedures and estimated costs of developing and implementing a system to obtain test scores, and the possible changes in the distribution of funds that might result from a shift in the basis for Title I allocations from poverty data to achievement scores. This analysis indicates that currently available data do not provide the information required to distribute Title I funds on the basis of achievement test scores either to school districts or to states. However, test data for this purpose could be produced within a three year period. (Author/AM)

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AN ANALYSIS OF "USING ACHIEVEMENT TEST SCORES TO ALLOCATE TITLE I FUNDS"

U.S. DEPARTMENT OF HEALTH
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February 17, 1978

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MAY 18 1978

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FOREWORD

A study of the fundamental purposes and effectiveness of compensatory education was mandated by the Education Amendments of 1974. The Congress made the National Institute of Education (NIE) responsible for investigating both the Title I program of the Elementary and Secondary Education Act of 1965 (ESEA) and similar programs funded by some of the States.

The legislation authorizing the NIE study does not specifically define "compensatory education," but the ESEA Title I declaration of policy has sometimes been considered a useful guideline:

> In recognition of the special educational needs of children of low-income families and the impact that concentrations of low-income families have on the ability of local educational agencies to support adequate educational programs, the Congress hereby declares it to be the policy of the United States to provide financial assistance (as set forth in the following parts of this title) to local educational agencies serving areas with concentrations of children from low-income families to expand and improve their educational programs by various means (including preschool programs) which contribute particularly to meeting the special educational needs of educationally deprived children. [Section 101, ESEA]

ESEA Title I is the largest Federal program for elementary and secondary education; more than $20 billion have been appropriated for the Title I program in its first 13 years (fiscal years 1966-78), and the fiscal year 1979 appropriation would be $2.735 billion under the provisions of P.L. 95-205 (Continuing Appropriations, Fiscal Year 1978). The fiscal year 1979 Administration budget proposal includes a Title I request for $2.979 billion for fiscal year 1980, plus $400 million for proposed additions to the Title I legislation.

Compensatory education programs in nearly 90 percent (about 14,000) of the Nation's school districts, plus some 240 Bureau of Indian Affairs (BIA) schools, are funded through Title I. Approximately five million public school children, 225,000 private school children, and 31,000 BIA school children participate in these programs.

In its report of December 1976, the NIE found that 16 States operated compensatory education programs during the 1975-76 school year, with a funding level of $600 million ("Evaluating Compensatory Education," p. III-13).

AN ANALYSIS OF "USING ACHIEVEMENT TEST SCORES TO ALLOCATE TITLE I FUNDS"[1/]

This report by the National Institute of Education (NIE) is one of six constituting the September 30, 1977, interim report to the President and the Congress on a comprehensive study of compensatory education.[2/] The NIE study has identified three specific "fundamental purposes" of Title I of the Elementary and Secondary Education Act (ESEA):

(1) To provide financial assistance to school districts in relation to their numbers of low-income children and, within those districts, to the schools with the greatest numbers of low-income children;

(2) To fund special services for low-achieving children in the poorest schools; and

(3) To contribute to the cognitive, emotional, social, or physical development of participating students. [3/]

The focus of this NIE report is primarily on a possible variation of the first objective -- the allocation of funds on the basis of achievement test scores rather than on the poverty criteria. (Low educational achievement test scores are often considered a measure of educational deprivation.)

This analysis contains a summary of findings, recommendations, implications, research limitations, and context of the report.

1/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Using Achievement Test Scores to Allocate Title I Funds. Washington, September 30, 1977.

2/ The six parts of the September 1977 interim report describe selected aspects of the overall NIE study, including the allocation of funds, compensatory education services, student development, and the administration of compensatory education programs. Greater detail about the scope of the study, the interim report, and the bills introduced in the 95th Congress to extend Title I may be found in Section V of this analysis.

3/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Evaluating Compensatory Education. Washington, December 30, 1976. p. xiii.

I. Summary of Findings

"Using Achievement Test Scores to Allocate Title I Funds" discusses issues regarding the allocation of funds by test scores, the procedures and estimated costs of developing and implementing a system to obtain test scores, and the possible changes in the distribution of funds that might result from a shift in the basis for Title I allocations from poverty data to achievement scores. The NIE discussion is limited to the distribution of basic grants to school districts, grants that account for 81 percent of the Title I appropriation. Although several States (e.g., Michigan, New York) have enacted compensatory education programs with achievement-based funding, there is no mention of these in the report.

The report indicates that currently available data do not provide the information required to distribute Title I funds on the basis of achievement test scores either to school districts or to States; however, test data for this purpose could be produced within a three-year period. The NIE findings on current feasibility will be discussed first, followed by a discussion of the issues to be resolved, the procedures and costs of a national testing system, and the possible effects of achievement-based Title I allocations.

A. Current Feasibility

The ESEA Title I formula currently uses poverty criteria at three stages of the allocation process: for determining State and county allocations, for determining school district allocations within counties, and for selecting eligible schools within districts. In addition, poverty criteria are sometimes used at a fourth stage, for determining allocations

to eligible schools. According to the NIE report, the Congress over the years has considered changing one of the fundamental purposes of Title I so that funds would be allocated on the basis of low-achieving children rather than low-income children.[4/] Such a change might be made at one or more of the stages in the Title I allocation process. (Some bills introduced in the 95th Congress to amend or extend Title I are described in Section V below.)

After an investigation of available achievement test data, the NIE report concludes that achievement-based funding currently is not possible on a national basis.[5/] The federally-sponsored National Assessment of Educational Progress, the largest testing program in the Nation, provides comprehensive information on the educational skills of children and young adults, but the program is not designed to provide either State or school district data. Several commercial tests are widely used for the evaluation of Title I as well as for other purposes.[6/] Although not discussed in the report, presumably none of these tests has been administered nationwide in a way that could provide the data required for the allocation of funds on a national or State-by-State basis.

4/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Using Achievement Test Scores to Allocate Title I Funds. p. 1.

5/ Ibid., pp. 11-15.

6/ Eight commercial reading tests used in grades 4, 5, and 6 were studied and analyzed by the Office of Education's "Anchor Test Study" in order to provide statistically equivalent scores that are comparable among these tests. The tests are listed and the analyses described in U.S. Department of Health, Education, and Welfare. Office of Education. Anchor Test Study: Equivalence and Norms Tables for Selected Reading Achievement Tests. Washington (74-305), 1974. pp. 1-10.

Title I funds are currently allocated to the county level only because the Commissioner of Education has determined that poverty data are not available for making direct, national allocations to school districts within States. Data at the county level on low-achieving children presumably do not exist, although the NIE report does not discuss this matter. Some States have test data for school districts, and the NIE judges that up to 22 States could allocate Title I funds on that basis in a limited system of within-State allocations.[7/] However, the report finds that such immense differences exist in current testing programs that it is impossible to compare the numbers of low-achieving children among States at the present time.[8/]

On the basis of 13 special demonstration school districts, the report concludes that achievement-based funding of schools within districts is now possible. However, the report makes no estimate of the number or percentage of school districts that actually have achievement scores available for this purpose.

B. Issues to be Resolved

An achievement-based Title I allocation system could be implemented, but the report claims that a number of issues must be resolved before the data for the system are collected.[9/] These issues involve the definition of low achievement, the size of the testing sample, and the guarantees of accuracy.

7/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Using Achievement Test Scores to Allocate Title I Funds. p. 15.

8/ Ibid., p. 14.

9/ Ibid., pp. 2-10.

For the definition of low achievement, both the subject area and the level of achievement must be determined. Since achievement tests typically are focused on a specific subject area, such as reading or mathematics, a choice of areas must be made. A single area might be chosen, or -- since low-achieving students in one area are not necessarily low scorers in another -- an alternative might be selected, such as the development of a multiple area test or a method for combining scores from several tests.

The level of achievement could be either absolute or relative. An absolute level would require defining a set of minimum skills that every child must learn. However, test developers and educators currently do not agree on what these skills should be, according to the report, and reaching a consensus might be difficult.[10/] The selection of a specific set of skills probably would influence the distribution of funds.

A relative level of achievement, in contrast, would only require the ranking of test scores and the selection of a specific cutoff point -- the 15th percentile, for example -- below which all students would be considered as low achievers. The cutoff could be at any level, but the actual point selected is likely to influence the distribution of funds.

The size of the sample involves questions of accuracy and cost; larger samples are both more accurate and more costly. A small sample of children from each State might be sufficient for determining the allocations to States. A larger sample including children from each school district would be required for determining the allocations to school districts.

10/ Ibid., p. 4.

For the selection of schools and children within districts, all children might have to be tested to determine those that actually would receive Title I services; however, the report does not mention this possibility or estimate its cost.

The sampling could be made representative of all children aged 5 to 17 years -- the age range of the poverty statistics currently used -- or it could be made representative of a single age or grade level. For the purpose of distributing funds, testing at a single grade level would require an assumption that low achievement in the third grade, for example, is proportional to low achievement in all other grades; the lower cost of testing at a single grade level might make such an assumption attractive. Testing a sample of all school-aged children might not require a larger sample, but would require designing different tests for each age or grade level. Special arrangements apparently would be made for counting and testing (or excluding) handicapped children, non-English speakers, absentees, dropouts, and nonpublic school children.

According to the report, a guarantee of accuracy that test results reflect the incidence of low achievement "would be crucial to acceptance of an achievement-based system."[11/] The guarantee would require both "that the data be up-to-date and that possible problems of negative incentives be avoided." The report states that a testing program could provide data more timely than the poverty statistics based on the decennial census of population, and hence might reflect more accurately and

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11/ Ibid., p. 8.

validly the incidence of need. Achievement testing every two to four years is suggested by the report, with cost and timeliness the major considerations (discussed below).

There would also neeed to be a guarantee that potential beneficiaries could not manipulate the test results, according to the report. Specifically, States and school districts have little or no capacity to influence poverty statistics, but they might be able to manipulate students' achievement test scores, thereby increasing the amount of Title I funding for themselves. Furthermore, there is a possible negative incentive in achievement-based funding in that improved educational performance might result in a decrease of funds. The report concludes that "a combination of simple administrative arrangements" would make such manipulation unlikely.[12/]

C. Procedures and Possible Costs

The NIE report estimates that three years would be required to produce the initial achievement test data suitable for Title I allocations.[13/] The cost of a testing program basically would depend on whether it would be used for State-level or district-level allocations. Test data for State allocations are estimated to cost $7.2 million, and the data for district allocations are estimated at $53 million. These costs are based on the assumptions that only nine-year-olds would be tested, that reading skills would be the only subject tested, and that testing

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12/ Ibid., p. 9.
13/ Ibid., p. 16.

would take place every three years. It is also assumed that 250,000 students would be tested for State allocations and 2.7 million students would be tested for district allocations.[14/] The report estimates that the testing of more than one grade level would increase the total cost by 20 percent, and the testing of additional subject areas would increase the cost by 50 percent for each additional area.

D. Possible Effects

Although testing data currently are unavailable for an achievement-based allocation system, the NIE report combines testing data from several sources in an attempt to analyze the funding effects of a change to achievement criteria for the Title I formula.[15/] The data thus obtained include a large national sample of pupils in grades 4, 5, and 6 who were given the Metropolitan Achievement Test (Reading, Form F), administered through the Office of Education's Anchor Test Study in April 1972. Other sources of data include all State-collected achievement data that were judged by the NIE to be suitable for analysis. These State data are not described in any detail by the report, but apparently they include results from different tests, grades, and years. Test data collected by these procedures may be the best available for an investigation, but since test scores

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14/ Ibid., pp. 19-20. The report states that this sample size will provide "a 10 percent precision level at the 95 percent confidence interval." Assuming "precision level" is a reference to the statistical term "standard error," the quoted phrase means that the ranges of values within 10 percent of the estimated number obtained from a series of samples will contain the actual number 95 percent of the time.

15/ Ibid., pp. 23-39.

fluctuate over the years and few tests are fully comparable, the resulting analysis must be treated as tentative. The report in fact warns that the estimates "do little to reduce uncertainty about the likely consequences" of changing to achievement-based funding.[16/] Nevertheless, the report tentatively estimates the effects of changing the Title I formula from its current poverty basis to an achievement standard.

At the regional level, no significant effects were detected from the proposed change in the formula.[17/]

At the State level, data for analysis were considered accurate enough to analyze funding changes in 34 States and the District of Columbia. (States where the error of estimation was calculated to be greater than 40 percent were excluded from this analysis.) When compared with the poverty data used in the Title I formula, 23 of the States and the District of Columbia were estimated to gain or lose more than 15 percent of their share of formula-eligible children. The largest proportional increases would be for the District of Columbia and Connecticut and the largest decreases would be for Oklahoma, West Virginia, and Arizona.[18/]

At the school district level, it was estimated that nonmetropolitan districts generally would lose funds if achievement-based funding were implemented. However, large funding variations were found for urban and suburban districts; some of these districts would be likely to gain funds, others would be likely to lose. Districts with high percentages of black

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16/ Ibid., p. 27.
17/ Ibid., p. 33.
18/ Ibid., p. 27.

children were estimated generally to gain funds under achievement-based funding; districts with high percentages of whites would likely lose; and there generally would be no major changes for districts with high percentages of Spanish-surnamed children.

For these analyses, the report uses an achievement level at or below the 15th percentile. At higher cutoff levels, the distribution of low-achieving children was estimated to be approximately the same as the distribution of all children aged 5 to 17 years.[19/] Cutoff levels below the 15th percentile would appear to favor cities at the expense of the suburbs in general, but are estimated to have no impact on non-metropolitan areas. Lower cutoff levels are likely to favor districts with high concentrations of black children, according to the report.[20/]

19/ Ibid., p. 35.
20/ Ibid.

II. Recommendations

The focus of "Using Achievement Test Scores to Allocate Title I Funds" is on the issues, procedures, costs, and effects of implementing an achievement-based allocation system as an alternative to the poverty-based allocations in the current ESEA Title I legislation. This report makes no explicit recommendations for legislative action. (The NIE is obligated to make recommendations as part of the overall study, but the final report is not due until September 30, 1978.)

III. Implications

Several aspects of the achievement-based Title I funding discussion might be of particular interest to the Congress, including:

-- a public policy choice;

-- the necessary data; and

-- the operation of the program.

A. A Public Policy Choice

The NIE report explores the use of achievement-based funding as a possible alternative to the existing poverty-based formula of ESEA Title I. The selection of a formula is a basic public policy choice -- whether Title I primarily should assist poor schools and poverty children or whether it should assist educationally deprived children and low achievers. Research can illuminate some of the formula issues, but the ultimate choice of the funding objective must rely on basic legislative preferences and value judgments about the priorities of the program itself. The dimensions of the choice include the mixed objectives of Title I, the original assumptions of the legislation, the research findings on the relationship between poverty and educational deprivation, and the legislative preferences themselves.

As indicated by the three "fundamental purposes" identified in the NIE study, the objective of Title I contains elements of assisting both poverty and educationally deprived children. The formula includes both poverty and educational deprivation standards for the allocation of funds; it uses poverty as the sole allocation criterion for determining the funding of school districts, poverty to select eligible schools, poverty or educational

deprivation to fund schools, and educational deprivation for the selection of children to receive services within schools. Despite this mixture of poverty and educational deprivation as the allocation mechanism within school districts, the initial distribution of funds to the school district level is completely determined by poverty criteria; thus, the program can be referred to as having a "poverty-based" formula even though the funds are used within schools to purchase services for educationally deprived children. A county or school district without any eligible poverty children cannot receive Title I funds, whatever its number of educationally deprived children. The report indicates that some Congressional consideration has been given to changing from poverty standards to measures of educational deprivation in the initial allocation of funds, as the basic objective of the program and as the basis for the formula.[21/]

It might be argued that one of the original assumptions of the Title I legislation was the existence of a close correlation between poverty and educational deprivation (or low achievement test scores, which are often considered a measure of educational deprivation). If the correlation were great enough, then there would be no real need to decide the relative importance of the two elements -- the funding consequences would be the same and the program could be justified equally well as assistance to either poverty or educationally deprived children.

According to the report, some would question the strength of the relationship between poverty and educational deprivation.[22/] An imperfect

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21/ Ibid., p. 1.
22/ Ibid.

correspondence between poverty and low achievement is implied by the NIE funding comparisons. Although the report does not directly address the degree of the relationship, a later NIE report does examine this question.[23/] Based on a survey of existing research, it indicates that, at the individual level, educational achievement and family income are correlated on the average at about the 0.3 level.[24/] The 0.3 correlation coefficient shows that poor children are more likely to be low achievers than those from other backgrounds; however, it also shows that many poor children are not low achievers and that many low achievers are not poor.

The square of the correlation coefficient can be used to show the percentage of variance in one characteristic (e.g., achievement scores) that can be explained or predicted from another (e.g., family income). For example, if a correlation of 0.3 were found between achievement and income, the square of 0.3 is 0.09, meaning that 9 percent of the variance in achievement can be explained by changes in income.[25/] The correlation coefficient cannot be used to imply that one characteristic causes another, but merely the degree to which several characteristics vary together.

23/ U.S. Department of Health, Education, and Welfare. National Institute of Education. The Relationship between Poverty and Achievement by Alison Wolf. Washington, December, 1977. The summary of this report is attached as Appendix A.

24/ Correlation coefficients are used to show the degree of a statistical relationship between two characteristics and can have a range from -1.0 to +1.0, for perfect negative and positive relationships, respectively. A coefficient of 0.0 would show absolutely no relationship to exist.

25/ The range of the square of the correlation coefficient is between 0.0 and +1.0, but except for these extremes, the square will always be smaller than the corresponding correlation coefficient.

The correlation between the proportions of children in poverty and low achievers was also examined at the school and school district levels. Results vary markedly at the school level, but for the country as a whole, a 0.5 or 0.6 correlation was found. At the school district level, a national average was not obtainable; for the districts in the limited number of States where data were available, a range between 0.0 and 0.6 was found. Unlike the individual level correlations, proportional correlations merely show that poorer districts generally have more low achievers than other districts -- it does not necessarily mean that the low achievers and poverty children are the same individuals.

For the poverty-based Title I formula generally to assist low achievers, there would only need to be correlations between poverty and low achievement at (a) the district level within States and (b) the school level within districts. The existence of an individual level relationship would not be necessary since the funds would be allocated to schools with low achievers anyway under the above conditions.

The interpretation of these findings may depend on basic legislative preferences. If the correlations are weaker than originally assumed, then the range of public policy choice is greater as to whether poverty or educational deprivation should be the primary basis of allocations. For those who consider Title I a poverty program -- or a program that allocates funds to the poorest schools for services to educationally deprived children within them -- these findings may support, or be inconsequential to, their legislative preferences. Specifically, the findings generally indicate that in many States and school districts, Title I funds are more likely to be

concentrated in schools with greater proportions of low achievers than in other schools.

For those who think that the program should be oriented toward assisting low-achieving children, the findings may support a legislative change. The findings indicate that allocations would be made somewhat differently if achievement-based funding were implemented and that the existing formula does not provide assistance completely in proportion to the number of low-achieving children.

For those who think that the Title I program should contain a mixture of poverty and achievement objectives, the findings might be examined in conjunction with the current provisions to see what the appropriate balance should be. The correlations generally show that poverty-based funding reaches many low achievers and that achievement-based funding would reach many poverty children. However, the distribution of funds could change -- at least marginally, and significantly for some places -- if achievement-based allocations were implemented.

B. The Necessary Data

Despite the amount of testing that occurs in elementary and secondary education, the NIE report finds that existing test data are insufficient for achievement-based funding at either the State or school district level. Before obtaining the necessary data, the Congress, or perhaps an agency such as the NIE or the Office of Education, would have to resolve the issues regarding the definition of low achievement and a guarantee of accuracy of the resulting data -- issues on which test developers and educators apparently disagree. The resolution of each specific issue is

expected to have an impact on the measurement of low achievement thus defined, and hence affect the distribution of funds that might be allocated on that basis.

According to the NIE report, a Federal system to collect test data as a basis for school district allocations would take three years to implement at an estimated cost of $53 million (assuming that only nine-year-olds would be sampled and that only a single subject area would be tested). If data were collected solely for making State allocations, a smaller cost is estimated. However, if States were required to undertake their own testing for school district allocations, the total cost to Title I might be the same as the cost for a Federal system to collect similar data. In either case, some Title I funds otherwise available for direct educational services might be used to absorb the costs of the testing program. ($53 million would amount to nearly 2 percent of the Title I appropriation of $2,735 million for fiscal year 1979.)

The decennial census collects poverty data that are used in the allocation formulas in various Federal programs; the achievement data collected under the proposed system do not appear to have any immediate utility for Federal programs outside of education. The data might be of some research value for analyzing the condition of American education, although the National Assessment of Educational Progress already undertakes such research with the data it collects. The report does not explore the potential for sharing the costs of collecting achievement data with other Federal programs or with State governments.

A comparison of the collection of poverty data with the proposed

achievement data may be useful. At no cost to the Title I program, poverty children are counted every ten years by the decennial census (although the 1985 mid-decade census may provide more frequent updates). At some cost to the program, achievement data could be collected every three years, according to the report. Considerable fluctuations in the distribution of both poverty and low achievement are estimated to occur over time, although the magnitude and frequency of change appear difficult to specify precisely. Assuming that the variation indicates an underlying change in the need for funds, the fluctuating statistics might be an argument in favor of more frequent data collection. For $53 million from the Title I program, however, equally current and accurate estimates of the number of poverty children might be collected. The report does not explore this possibility nor is there a discussion of the current cost to the Title I program of allocating funds on the basis of out-of-date statistics.

The report presents tentative estimates of allocations that might occur under an achievement-based funding system; no precise comparisons will be possible until the proposed three-year data collection is completed. The system is expected to measure patterns of low achievement different from any existing achievement data for two reasons. First, the pattern of low achievers among school districts can be expected to change during any three-year period.[26/] Second, assuming that the low

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26/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Using Achievement Test Scores to Allocate Title I Funds. p. 8.

achievement measure is different from any existing definition, a Federal test would identify and count a different set of low achievers that might be obtained through any existing test.

C. The Operation of the Program

On the basis of the NIE report, it would appear that some possible complications of the existing Title I program might be alleviated by achievement-based funding, while some others would be unaffected. For example, if counts of low achievers were estimated for every school district, then the determination by States of subcounty allocations could be eliminated as a separate stage of the allocations process. This stage currently requires States to determine school district allocations from county allocations on the basis of some poverty criteria where county and district boundaries do not coincide. The removal of this stage might also allow an earlier report to districts of the amount of Title I funds they would receive for any fiscal year.

Other aspects of Title I program operations, especially those pertaining to the administration of the program by school districts, are unaddressed by the report.[27/] If school districts were sampled for low achievers, special provisions would be necessary to include low achievers in nonpublic schools on an equitable basis in the Title I program. Several

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27/ A companion report discusses the results of special demonstration studies of school districts which were allowed to use achievement-based funding on intra-district allocations. U.S. Department of Health, Education, and Welfare. National Institute of Education. Demonstration Studies of Funds Allocation Within Districts. Washington, September 30, 1977.

requirements have been designed to ensure that Title I funds currently will be used for additional services to educationally deprived children, but there is no indication whether these would be affected by achievement-based funding. Concentration, or targeting, of funds under the existing program has been required to insure that services would be intensive enough to meet the needs of participating children -- targeting of funds might also be necessary under achievement-based funding as well, but this is not discussed in the report.

IV. Research Limitations

The NIE report discusses a possible change in one part of the ESEA Title I formula, including the issues involved, the estimated costs, and some possible effects. The overall usefulness of the findings is limited, however, by the omission of certain topics and aspects related to a possible change in the Title I formula. These include:

-- educational deprivation;

-- scope of the proposed testing;

-- program operation at the district level; and

-- nonpublic participation.

It might also be noted that the inadequacy of existing achievement data prevents the accurate prediction of the consequences of changing the formula; that a discussion of current State programs using achievement-based funding would have broadened the utility of the report; and that little mention is made of how Title I State agency programs and State administrative grants would be modified under achievement-based funding.

A. Educational Deprivation

The Title I declaration of policy indicates that programs should be funded that "contribute particularly to meeting the special educational needs of educationally deprived children." Although the majority of such children probably have low scores on achievement tests, it might be argued that several types of children would be excluded from assistance if low achievement were used as the sole criterion for educational deprivation. These children might include the moderate achievers who could be high achievers with special assistance, gifted and talented children with

special educational needs, and children with learning disabilities who otherwise score well on achievement tests. Using low achievement scores might also include children who are poorly motivated in test taking but are not educationally deprived otherwise. Low achievement scores are often used as an indicator of educational deprivation; nevertheless, a discussion of the broader aspects of educational deprivation and its measurement would have been useful in the report.

B. Scope of the Proposed Testing

The report might benefit from a more thorough discussion of some of the issues that would require resolution if a national testing system were designed. For example, not all children with low scores in reading also have low scores in mathematics. A legislative definition of educational deprivation might benefit from knowledge about the extent of the overlap between low achievement in reading and mathematics, as well as from some estimates on how differently funds might be allocated if testing were restricted to a single subject area as opposed to several areas.

The report indicates that low achievement varies according to the age or grade level tested, but no figures are supplied to show the extent of variation or the differences in allocations if a single or several grade levels were tested. It is claimed that seven years is the youngest advisable age for testing and that even at this age, the development and administration of tests would be complicated by the lack of test-taking abilities of such young children.[28/] More discussion of the problems of

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28/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Using Achievement Test Scores to Allocate Title I Funds. p. 6.

testing at various age levels might assist the resolution of this issue.

Unlike poverty data, testing data may be subject to manipulation by teachers and school officials, thereby increasing the amount of funding for themselves, according to the report.[29/] Methods of counteracting this possibility are discussed, and it is concluded that a combination of administrative procedures would make data manipulation unlikely. However, this problem is also discussed in another report, written under NIE contract but apparently not a part of the compensatory education study, that suggests the wide range of opportunities for educators to miseducate children, or for schools to give the appearance of low achievement (such as early promotion to the grade level where testing might take place.)[30/] The contract report also indicates that teachers may take enough pride in producing high-scoring students to counterbalance the incentives to gain more funds, but concludes that additional research is needed on the entire topic.

The national testing system discussed in the report would provide estimates of numbers of low achievers at the "10 percent precision level" (meaning that the ranges of values within 10 percent of the estimated number obtained from a series of samples will contain the actual number 95 percent of the time).[31/] Some may consider this level of accuracy too

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29/ Ibid., pp. 8-10.

30/ Feldmesser, Robert A. The Use of Test Scores as a Basis for Allocating Educational Resources. (Final Report of a Study Conducted for the National Institute of Education under Grant No. NIE-G-74-0066.) Princeton, Educational Testing Service, November, 1975. pp. 71-74.

31/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Using Achievement Test Scores to Allocate Title I Funds. p. 19.

imprecise. For example, the largest allocation for any State under the existing Title I program is about $200 million (received by New York). A leeway of 10 percent in the estimation error in this case would mean a gain or loss of up to $20 million, or a range of $40 million for the largest State allocation. Information on the accuracy of the estimates of poverty children counted in the decennial census might have provided a useful basis of comparison, and it might have been helpful to have a summary of the levels of accuracy currently found in other Federal allocation formulas using estimated data as a basis for the distribution of funds.

The report might have benefitted from a review of the literature regarding the development or emergence of national curriculum standards as a possible consequence of a national testing system.[32/] Widely different points of view are possible on this issue, including:

(a) national testing would not lead to national curriculum standards;

(b) testing might not lead to national standards, but local educators might nevertheless feel compelled to "teach to the test" anyway;

(c) testing would lead to national standards, and the nation's schools need them; and

(d) testing would lead to national standards, but their responsibility traditionally and properly should reside at State and local levels of governance.

32/ See, for example, Olson, Paul A. Power and the National Assessment of Educational Progress. National Elementary Principal, v. 54, July-August 1975, pp. 46-53;
Tyler, Ralph W. Some Comments on Power and the NAEP. National Elementary Principal, v. 54, July-August 1975, pp. 54-56; and
Cawelti, Gordon. Requiring Competencies for Graduation -- Some Curricular Issues. Educational Leadership, November 1977, pp. 86-92.

The creation of the National Assessment of Educational Progress (NAEP) in the late 1960's aroused some fears of the advent of national curriculum standards. An evaluation of the actual consequences of the NAEP might have been useful as a basis for judging the impact of the national testing system discussed in the NIE report.

C. Program Operation at the School District Level

Achievement-based funding as an alternative to the Title I formula would appear to have two distinct parts: allocations among school districts and allocations within school districts. The report, however, focuses on the part of the formula that allocates among school districts, and claims that "achievement-based funding within school districts is possible now."[33/]

A companion report discusses demonstration projects in 13 school districts that volunteered for a special NIE study,[34/] but these districts provide insufficient evidence on the extent to which the 16,000 existing school districts have test data suitable for achievement-based funding. Furthermore, a testing program using a small sample of children from each school district may be sufficient for the allocation of funds to school districts, but a testing program of all children may be necessary to select the students in need of services within each district. There is no discussion on whether Federal achievement standards should prevail in achievement-

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33/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Using Achievement Test Scores to Allocate Title I Funds. p. 12.

34/ U.S. Department of Health, Education, and Welfare. National Institute of Education. Demonstration Studies of Funds Allocation within Districts.

based allocations within school districts, or whether local discretion might be allowed at this stage in the formula. Assuming that allocations will be insufficient to meet the needs of all educationally deprived children, the alternatives to a full scale testing program to identify each individual low achiever throughout every school district would appear to be the restriction of services to specific grade levels or specific target schools, but neither this report nor the companion volume discusses this question.

D. Nonpublic Participation

All poverty children, either in or out of public schools, are counted for allocation purposes under the current Title I formula. Beyond indicating that nonpublic school enrollment figures would have to be federally collected under the achievement-based funding proposal, there is no mention of how nonpublic children would be tested or how the funds would be distributed for serving these children. A discussion of how nonpublic schools would fare under achievement-based funding might have increased the utility of the NIE report.

V. Context of the Report

One of the provisions of the Education Amendments of 1974 required that the NIE make a study of the purposes and effectiveness of compensatory education (section 821, Public Law 93-380). Specifically, the study shall include:

a. an examination of the fundamental purposes of compensatory education;

b. an analysis of the means to identify the children with the greatest need for such programs;

c. an analysis of the effectiveness of methods and procedures for meeting the educational needs of such children;

d. an exploration of alternative methods for distributing compensatory education funds to States and school districts in a timely and effective manner;

e. not more than 20 experimental programs, geographically representative, to assist the NIE in carrying out the purposes of this study; and

f. findings and recommendations, including recommendations for changes in ESEA Title I or for new legislation.

Funding for the NIE study amounted to $15 million, to be obligated during fiscal years 1975 through 1977. As amended by Public Law 94-482, the law requires the NIE to submit interim reports to the President and the Congress on December 31, 1976, and on September 30, 1977, and to submit a final report on September 30, 1978.

Six reports constitute the NIE interim report of September 1977. These are entitled:

"Administration of Compensatory Education"

"Compensatory Education Services"

"Demonstration Studies of Funds Allocation Within Districts"

"The Effects of Services on Student Development"

"Title I Funds Allocation: The Current Formula"

"Using Achievement Test Scores to Allocate Title I Funds"

The interim report of December 1976 is entitled "Evaluating Compensatory Education." It discusses NIE's strategy for the overall study and presents preliminary findings of a survey of compensatory educational services in 100 school districts.

The NIE has designed 35 research projects to make a comprehensive response to the mandates of the legislation. The specific projects, the contractors, and the completion dates of each project are described in Appendix B of "Evaluating Compensatory Education." The NIE has divided the projects into four major areas of inquiry:

a. funds allocation research, including alternate measures of poverty, not more than 20 experimental programs for school districts (16 districts participated in the first year, 13 in the second year), a computerized simulation model, an analysis of the relationship between poverty and educational achievement, the distributional consequences of using student achievement measures, and the subcounty allocation process;

b. research on services, including a survey of compensatory education in 100 school districts, case studies on noninstructional services provided under ESEA Title I, and a teacher-training study;

c. research concerning effects on children, including alternative approaches to education, such as cross-age tutoring, client-controlled elementary schools, the extent of parental involvement, and some studies of teaching basic skills in reading and mathematics; and

d. administration, including a study of the Federal administration of ESEA Title I, a survey of how States regulate ESEA Title I and State compensatory education programs, a case study on ESEA Title I and desegregation, a study of parent advisory councils, a study of the participation of nonpublic schoolchildren in compensatory education programs, a review of test bias and the classification of children. (A study of the problems of implementing ESEA Title I in rural schools was originally planned, but has been cancelled.)

The ESEA Title I authorization for appropriations was extended through fiscal year 1979 under the provisions of the Education Amendments of 1977 (P.L. 95-112, September 24, 1977). Without further Congressional action, section 414 of the General Education Provisions Act will automatically extend Title I for one additional year. Several bills have been introduced in the 95th Congress to extend Title I authorization for additional years, including:

H.R. 15 (Perkins), "Elementary and Secondary Education Act of 1977." Among other provisions, extends the Title I authorization through fiscal year 1983, making no other changes in Title I legislation.

S. 1753 (Pell), "Elementary and Secondary Education Act of 1977." Contains Title I provisions similar to H.R. 15.

H.R. 7571 (Quie), "Elementary and Secondary Education Act of 1977." Among other provisions, extends the Title I authorization through fiscal year 1982, but changes the purpose of Title I to provide financial assistance for programs that help overcome deficiencies in children's basic learning skills, and would allocate funds according to educational need as measured by an assessment of reading, mathematics, and language arts.

I

SUMMARY

NIE examined the available evidence on the relationship between a student or location's poverty and their average level of achievement. This was done separately for four different categories: individual pupils, schools, districts, and states, Information on the relationship between other social indicators and achievement was also examined. The results indicated that the strength of the relationship is different for each of the four categories, and also varies from place to place.

Individual-level relationships

Studies using national samples of students are generally consistent in their results and show achievement and family income to be correlated at about the 0.3 level. Many poor children are not low-achieving and many low-achievers are not poor.

However, poor children are more likely to be low-achieving than those from other backgrounds. The percentages of poor children classified as low achieving naturally vary with the definition of low-achievement used, but in general they are about twice as likely to perform poorly as are their peers. Other social measures, such as parents' education,show similar results.

These figures are national averages. When students in particular districts are studied the relationship between their family income and their attainment is often quite different. In NIE's demonstration districts, the correlation between family income and achievement ranged from a high of .46 to a low of .03. In one of the districts, 66% of poor children read a year or more below grade level. In another, the figure was 30%.

School-level relationships

NIE also examined the relationship between the proportion of a school's pupils in poverty and its average achievement level. The results indicate

that IH many large cities, the poorest schools are most often also the lowest achieving. Correlations are generally as high as .8 or .9. In other districts, however, schools' poverty and achievement are far less closely related, and correlations are sometimes very low. This probably reflects the fact that in many large cities, neighborhoods vary markedly in income level and type, whereas elsewhere residential patterns are more mixed. For the country as a whole, the correlation is about .5 or .6. No other single social measure is consistently more strongly related than poverty to school achievement.

We should emphasize that a high correlation at the school level does not mean that all poor pupils or low-achievers are in the poorest schools. Rather it indicates that schools will tend to have the same ranking when ordered in terms of their proportions of poor and proportions of low-achieving pupils. In some districts, most poor and low-achieving pupils are concentrated in a limited number of schools. In others they are quite evenly distributed across the district.

District-level relationships

The relationship between the proportion of a district's students who are low-achieving and the proportion of its children in poverty varies markedly from state to state. In some it is fairly close, with correlations going as high as .6. In othes, there is virtually no relationship. The same is true for other social indicators, such as the percentage of female-headed or welfare families in a district, or whether the district is urban, suburban, or rural. In some states, these characteristics are clearly correlated with district achievement; in others, no such relationship is apparent.

State-level relationships

The final level at which the poverty-achievement relationship was examined was that of the states. Here the relationship appears to be fairly strong. The poorer states tend also to have lower average achievement. However, this is probably in large part because the South, which remains the poorest region of the country, also shows markedly lower achievement than do other regions. In other words, Southern states are at the top when states are ranked by either their percent poor or their percent low-achieving. However, within regions, the relationship is considerably less close.